FTH-7010
OPERATING MANUAL

CONGRATULATIONS!

You now have at your fingertips a valuable communications tool—a Yaesu two-way radio! Rugged, reliable and easy to use, your Yaesu radio will keep you in constant touch with your colleagues for years to come, with negligible maintenance down time.

Please take a few minutes to read this manual carefully. The information presented here will allow you to derive maximum performance from your radio. After reading it, keep the manual handy for quick reference, in case questions arise later on.

We're glad you joined the Yaesu team. Call on us any time, because our business is communications. Let us help you get your message across.

NOTE

There are no owner-servicable points inside this transceiver. All service jobs must be referred to an authorized Yaesu Service Representative. Consult your Authorized Yaesu Dealer for installation of optional accessories.

FTH-7010 Microprocessor-Controlled UHF Hand-Held Transceiver

The FTH-7010 is a powerful, compact hand portable transceiver for the UHF Land Mobile Band that offers the convenience of very small size and light weight combined with features and flexible performance only possible with microprocessor control.

The transceiver is housed entirely in zinc and aluminum die-cast alloys, and the battery casing is constructed of thick, high-impact polycarbonate plastic, for the ruggedness required in the most demanding applications. Rubber gasket seals around external controls and connectors keep out dust, spray and rain, assuring years of reliable operation even in harsh environments.

The latest microprocessor-controlled features include up to 15 simplex or semi-duplex channels, selective busy channel scanning, and priority channel monitoring. A detented rotary knob provides convenient channel selection, and a high/low power switch and built in automatic power saver allow greatly extended battery charge life. All of these features are readily programmable by your Yaesu dealer using an external computer.

The FTH-7010 is available with or without 5-tone or CTCSS encoder/-decoders, and a choice of battery chargers and protective cases.

Unpacking and Inspection

When first opening the packing carton, check the radio for any visible signs of damage. Before installing the battery pack, check the action of the controls and ensure that none of the connectors have loosened during shipping. If any damage is present, make a complete record and notify the shipper who delivered your set immediately (or the dealer, if purchased at a shop). Save the packing material for possible use later.

Antenna Installation

Install the supplied flexible antenna by aligning the small studs on the transceiver connector with the notches in the antenna plug, then press the plug in and turn it clockwise ¼-turn until it latches.

To remove the antenna, press the antenna plug while turning it ¼-turn counterclockwise, and then pull it off.

Other types of antennas may be used with this transceiver, but the antenna and feedline (if used) must have an impedance of 50 ohms at the operating frequency for proper transceiver performance. To obtain proper fit with some BNC plugs, it may be necessary to remove the rubber gasket around the antenna jack on the transceiver.

CAUTION!

Never press the Push-to-Talk switch without having an antenna connected to the radio.

Battery Information

The FTH-7010 may be supplied with the FNB-20, FNB-22 or FNB-24 rechargeable Ni-Cd battery packs. We do not recommend using of any other battery, and damage caused using another type is not covered in your warranty.

The battery should be fully charged before it is used with the transceiver for the first time. It may be charged either while attached to the transceiver or separately, using the NC-29 battery charger described below.

To install the battery on the transceiver:

- Make sure the **POWER** switch is OFF (undepressed), and remove the protective case, if used.

- Grasp the upper portion of the transceiver with your left hand, so that your palm is approximately over the display, and the tip of your left thumb is on the battery release latch button.

- Slide the button toward the top of the transceiver while using your right hand to slide the battery pack in or out of the track (on the side nearest the latch button).

Do not attempt to open the battery pack itself.

NC-29 Desktop Quick Charger

The NC-29 is a universal Ni-Cd battery charger with quick and trickle charging modes. The quick mode is automatically selected initially, to bring the battery pack up to full charge as fast as safely possible using an internal timer. Three indicator lamps show elapsed charging time after 1, 3 and 5 hours. The charger then automatically reverts to the trickle mode (green lamp), to prevent self discharge of the battery. The quick mode recharges a complelety discharged battery in about 5 hours, depending on temperature.

As mentioned above, it is not necessary to remove the battery pack from the transceiver to charge it, but transceiver operation may be impaired by noise while charging. Therefore we recommend having an extra battery pack on hand so that the transceiver can be used while the spare pack is being charged.

CAUTION

When charging a battery in the NC-29, do not remove it and then reinsert it in the charger while it is charging, as this will reset the timer and may then cause the battery to be overcharged.


MH-12A2B Speaker/Microphone Option

The speaker/mic can increase operating convenience and extend communications range and signal strength. It is equipped with a dual plug connector which mates with the **EAR** and **MIC** jacks on the top panel of the transceiver, disabling the internal speaker and microphone. The cable then allows the transceiver to be left clipped to the operator's belt, or to be held overhead above obstructions for improved performance, when required.

The speaker mic can be held close to your ear during reception; or if preferred, and external earphone can be connected to the transceiver via a plug on the speaker/mic, attenuating the audio from the speaker/mic. To transmit, just hold the speaker/mic close to your mouth and close its PTT switch.

Controls & Connectors

Top Panel
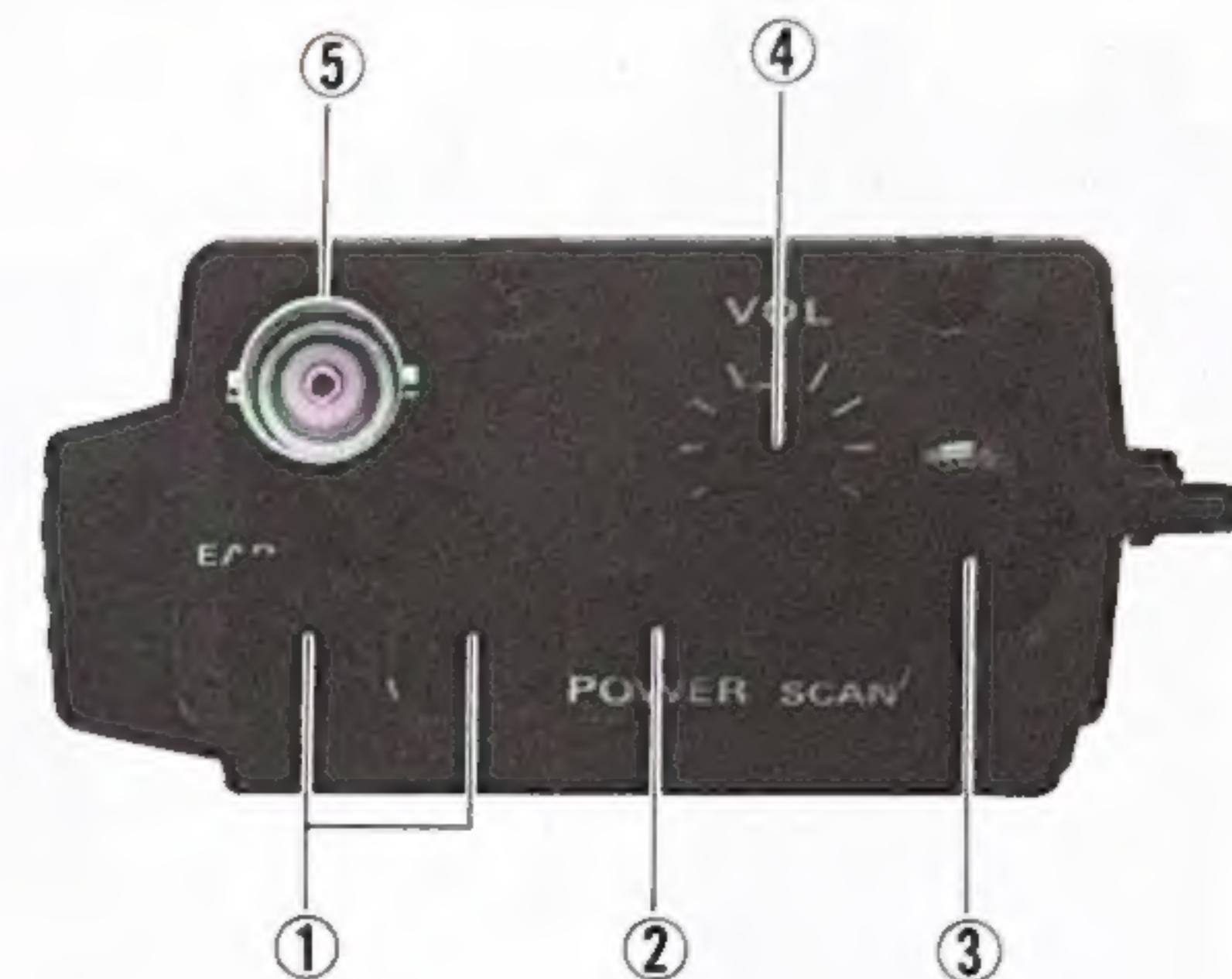
(1) EAR and MIC Jacks
These jacks are primarily intended for use with the MH-12A2B Hand Speaker/Microphone. An external earphone can be used in the larger jack, in which case the internal loudspeaker will be disabled. When these jacks are not used, make sure the rubber plugs are in place to protect the insides of the transceiver.

(2) POWER Switch
Press this button to turn the transceiver on (▬) and off (■).

(3) CHANNEL & SCAN Rotary Selector
This 16-position rotary switch selects the operating channel or scanning feature.

(4) VOL Control
Adjust this knob for comfortable receiver volume.

(5) Antenna Jack
This BNC-type jack accepts the supplied rubber flex antenna or other antenna designed for the installed channel frequencies.

Front & Side Panels
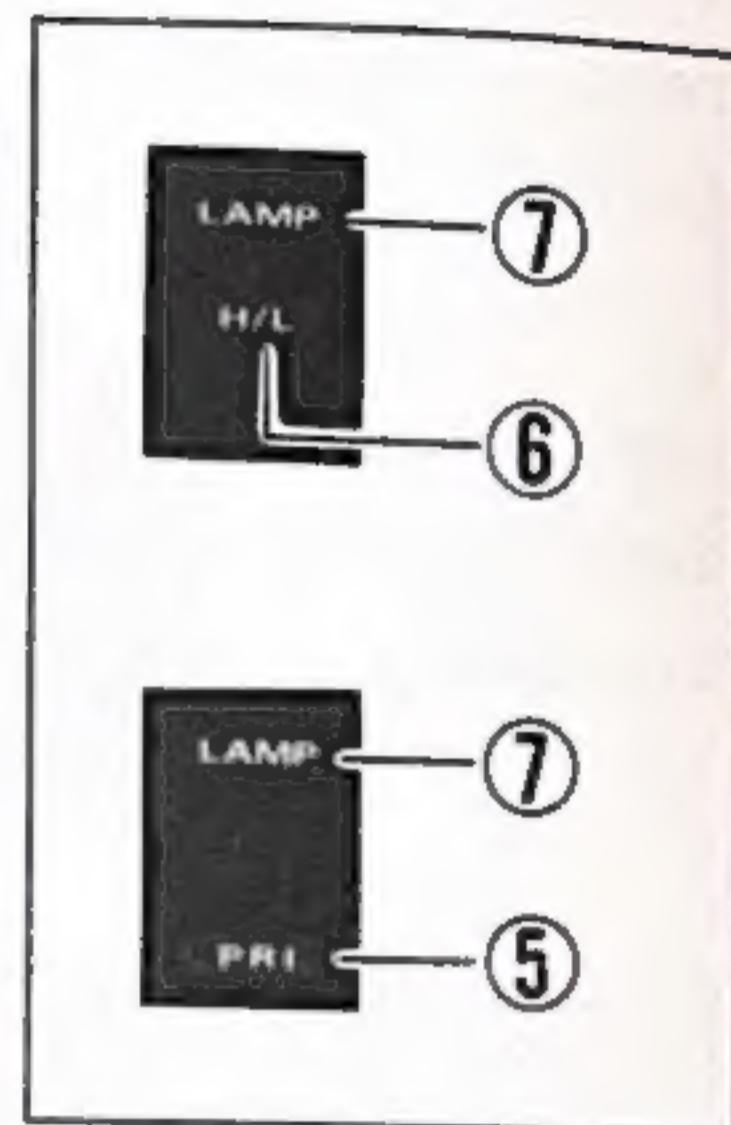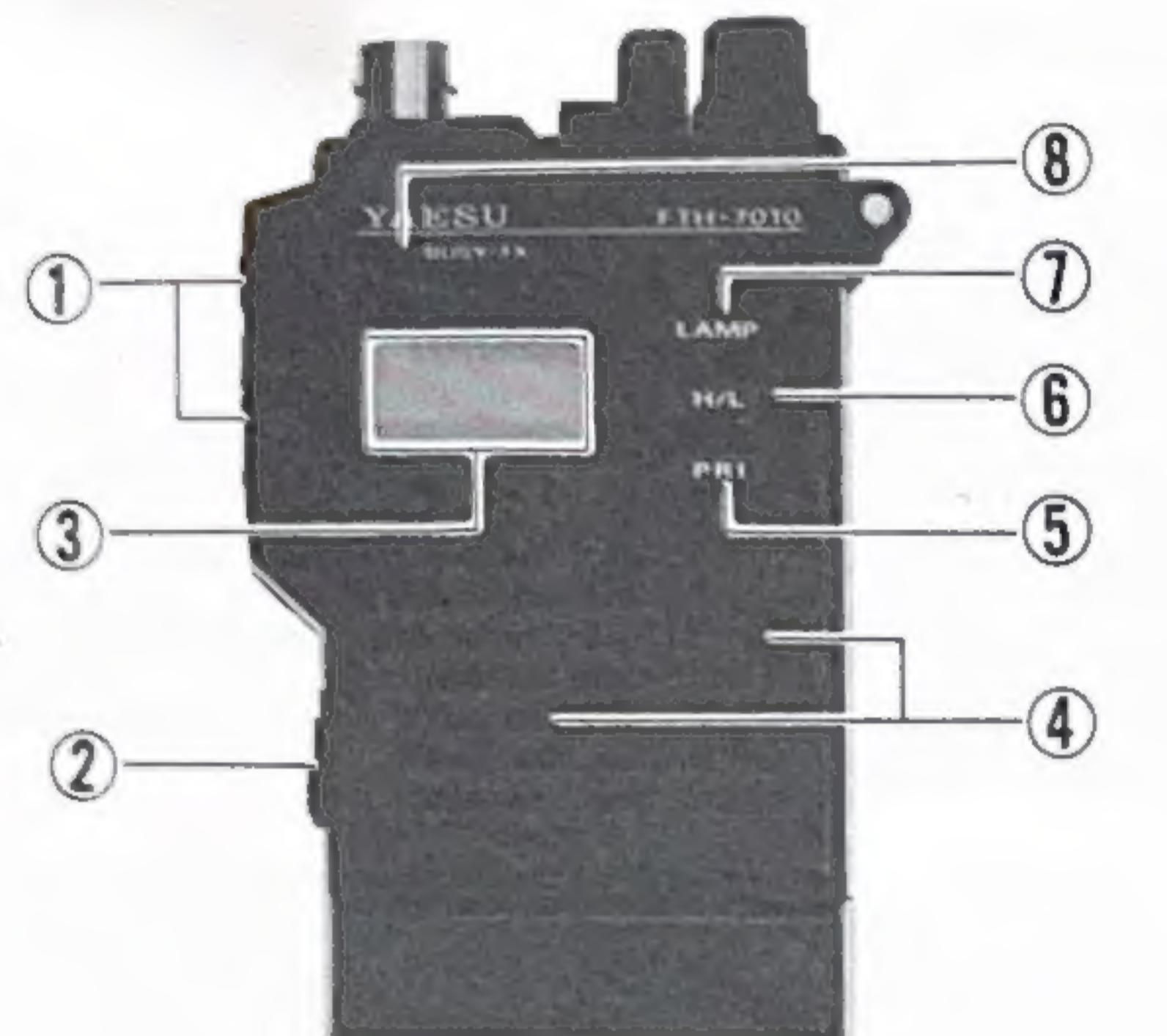
(1) Reset/Monitor and PTT (Push-To-Talk) Buttons
Behind the rubber cover are two pushbutton switches. The upper switch resets the 5-tone system, if installed, and provides a way to open the squelch so that any activity on the channel can be heard. The **BUSY/TX** lamp glows green while the squelch is open.

The lower (**PTT**) switch activates the transmitter. The **BUSY/TX** lamp glows red while transmitting.

(2) Battery Release Latch Button
Slide (and hold) this button upward to release the battery pack.

(3) Channel Display
The selected channel number is displayed here along with priority monitoring or scanning status, and low power operation, when these features are enabled.

(4) Loudspeaker and Microphone
The receiver's loudspeaker is located behind the left side of the grill. The microphone for the transmitter is behind the right side of the grill.

(5) PRI (Priority Monitor) Button
Press and hold this button for ½-second to activate monitoring of the pre-programmed priority channel, while operating on another channel. On some versions, where this feature is not needed, this button may be inoperative, or may not be present.

(6) H/L (High/Low Power) Button
Press and hold this button for ½-second to toggle between low and high transmitter power. "*LOW*" is displayed when low power is selected. For maximum battery charge life, use low power whenever possible. High power may be disabled on some channels where required by law. Also, some versions may have this button disabled, or it may not even be present.

(7) LAMP Button
Press this button to activate the display lamp for three seconds. If on, pressing this or another button, or turning the **CHANNEL** selector, will extend this period for three more seconds.

(8) BUSY/TX Indicator Lamp
This lamp glows green while the squelch is open during reception, and red while transmitting. Also, when the battery voltage is low, this LED blinks, indicating that the battery needs recharging (or replacement).

OPERATION

To acquaint yourself with the capabilities of the radio, please read this section with the radio in hand.

If the transceiver has not been used since leaving the factory, charge the battery completely before using it the first time. Also make sure the antenna is securely attached to the antenna jack.

If you have an external speaker/microphone, we suggest you not connect it until you become familiar with basic operation.

- Press the **POWER** button to turn the transceiver on.

- Press and hold the monitor button (above the **PTT** switch) to open the squelch, while adjusting the **VOL** control as desired on background noise or signals.

- Rotate the **CHANNEL** knob to select the desired channel number on the display.

- To call another station, make sure the channel is clear (**BUSY/TX** lamp off), and then hold the **PTT** switch on the side of the transceiver while speaking across (rather than directly at) the microphone in the right side of the front panel.

- Release the **PTT** switch to listen for a response, adjusting the volume control if necessary.

Battery Recharge Warning

After using the transceiver for a while the **BUSY/TX** lamp will begin to blink, indicating the battery must be recharged as soon as possible. Do not keep using the transceiver, as you might overdischarge (and damage) the battery. Switch it off and replace the battery if you have a backup pack, or recharge it before further use.

Note on Special Versions

Special versions are produced that have only two buttons on the front panel, instead of three. In these versions, Priority Monitoring or High/Low power selection are disabled.

Scanning and Priority Monitoring functions may also not be provided in some versions, when specified by the buyer.

Scanning

Channels to be scanned are programmed by your Yaesu dealer. To scan the programmed channels, set the **CHANNEL** selector to the **SCAN** position. Scanning will start (*"SCAN"* appears on the display during scanning), and then pause automatically when a station appears on a channel. When the channel becomes clear for a few seconds, and if you don't transmit, scanning will resume.

To stop the scanner at any time (or to prevent it from resuming), press the **PTT** switch momentarily.

Priority Channel Monitoring

Priority channel monitoring causes the receiver to check for signals on a preprogrammed "priority" channel, while scanning or listening on another channel. Whenever a signal appears on the priority channel, the receiver jumps there so you hear any priority calls.

Activate priority monitoring by pressing and holding the **PRI** key for ½-second. *"PRI"* appears at the left side of the display. You can now select any other channel or scan, and every few seconds the receiver will check for activity on the priority channel. When a priority signal is found, reception changes to the priority channel and priority monitoring ceases. Otherwise, to manually turn off priority monitoring, just press the **PRI** key again.

During priority monitoring, you can talk to stations on the main operating channel until a signal appears on the priority channel. At that time, pressing the **PTT** switch will put you on the priority channel, so you may have to go back to the main operating channel (using the **CHANNEL** selector) to finish an interrupted conversation.

Five-Tone Unit Operation (with the F5D-10 Option)

The F5D-10 sequential tone unit may be installed in your radio if you are part of a large group all using the same channel. Each radio is assigned its own tone code, to which only that receiver will respond. Digit selectors on the front of the F5D-10 allow each station to call any other simply by setting the selectors for another station's assigned code, and closing the PTT switch.

Receiving Calls

If the red **CALL** lamp on the F5D-10 is lit, press the Reset/Monitor button (above the PTT switch on the transceiver). The **CALL** lamp must be OFF to receive a call with the 5-tone system.

When another station (with a 5-tone unit) calls you, four things happen:

- Your radio automatically transmits your code for a moment to acknowledge your presence,

- a 1-kHz alerting tone sounds in your loudspeaker for three seconds,

- your receiver audio is activated, and

- the **CALL** lamp on the F5D-10 lights.

Just press the **PTT** switch to respond to the call.

After finishing a contact with another station, don't forget to press the radio's Reset/Monitor button to turn off the **CALL** lamp and silence the receiver, so that you will be able to receive other calls.

You may also receive group calls, at which times your radio will not transmit, although the other three items will occur. Again, remember to press the Reset/-Monitor button to turn off the **CALL** lamp when the call is finished.

Accessories

FNB-20	7.2-V, 600-mAh Ni-Cd Battery Pack
FNB-22	12-V, 500-mAh Ni-Cd Battery Pack
FNB-24	7.2-V, 1000-mAh Ni-Cd Battery Pack
NC-18B	117 VAC Compact Wall Charger for FNB-22
NC-18C	220-234 VAC Compact Wall Charger for FNB-22
NC-28B	117 VAC Compact Wall Charger for FNB-20
NC-28C	220-234 VAC Compact Wall Charger for FNB-20
NC-34B	117 VAC Compact Wall Charger for FNB-24
NC-34C	220-234 VAC Compact Wall Charger for FNB-24
NC-29	Desktop Quick Charger for FNB-20, -22 & -24
NC-33	Multi Charger for up to six FNB-20, -22 & -24
CSC-23	Soft Case for Transceiver with FNB-20
CSC-25	Soft Case for Transceiver with FTT-4 & FNB-20
CSC-28	Soft Case for Transceiver with FNB-22 or FNB-24
CSC-29	Soft Case for Transceiver with FTT-4 & FNB-22 or FNB-24
F5D-10A/B	Five-Tone Encoder/Decoder
FTS-19	Subaudible Tone Squelch Encoder/Decoder
FTT-4	DTMF Keypad Encoder
FVP-18	Voice Scrambler
MMB-32A	Mobile Hanger Bracket
MH-12A2B	External Hand Speaker/Microphone
MH-18A2B	Miniature External Hand Speaker/Microphone
FHA-3X	UHF Rubber Flex Antenna
FHA-7X	UHF Rubber Flex Antenna

Some accessories are supplied as standard per local regulations and requirements.

Specifications

General

Frequency Channelling:	3, 6, 14 or 15 channels within a 10-MHz spread between 400 and 470 MHz
Channel spacing:	12.5, 20 or 25 kHz
Frequency stability:	±2.5 kHz (±1.5 kHz between 0 and 30 °C w/12.5-kHz channel spacing)
Emission type:	F3E (direct FM modulation)
Antenna impedance (BNC jack):	50 ohms nominal (rubber flex antenna supplied)
Audio output impedance:	$8-16\Omega$
Supply voltage:	7.2 or 12.0 VDC (Ni-Cd Battery Pack)
Current consumption (approx.):	Standby: 50 mA save off, 20 mA save on (0.3s/0.6s rx/stby), Receive 150 mA, Transmit 800 mA (for 1W RF @ 7.2V), or 1500 mA (for 5W RF @12 volts)
Operating temperature range:	–25, –15 or –10 to +55 °C, as ordered
Case size (WHD, approx):	$55 \times 155 \times 32$ mm with FNB-22 Battery Pack
Weight (approx):	490g with FNB-22 Battery Pack

Receiver

Circuit type:	Double conversion superheterodyne
Intermediate frequencies:	47.9 MHz and 455 kHz
Sensitivity (typical, for 20-dB SINAD):	better than 1 µV
Adjacent channel selectivity:	better than 70 dB (60 dB for 12.5-kHz ch. spacing)
Spurious rejection:	better than 70 dB
Intermodulation suppression:	better than 70 dB
De-Emphasis:	–6 dB/octave
Hum and Noise:	better than –40 dB
Audio output (1 kHz into 8Ω for 10% THD):	more than 0.4W @12 V, or 0.2W @7.2 V

Transmitter

Modulation system:	variable reactance (F3E)
Power output:	5W, 5W/1W, 3W/1W or 2.5W/0.25W @ 12 volts (as ordered), or 1W/0.3W @ 7.2 V
Maximum deviation:	± 2.5 kHz, ± 4 kHz or ± 5.0 kHz (for 12.5-, 20- and 25-kHz channel steps, respectively)
Pre-emphasis characteristic:	6 dB/octave
Hum and noise:	better than –40 dB
Spurious emissions:	less than 0.25 µW
Modulation distortion:	less than 10% @ 1 kHz
Microphone type:	2-kΩ condenser

Specifications subject to change without notice.

YAESU

Performance without compromise.[SM]